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AUTHOR Smith, Sue Griffith; Beatty, David
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ABSTRACT

From the perspectives of both school and industry, this paper outlines the past, present, and future of a partnership between Ivy Tech State College (Columbus, Indiana) and Cummins Engine Company and other local industries formed to provide the southern Indiana area with a highly skilled workforce. First, David Beatty traces on-the-job training at Cummins, covering 1956 discussions about the creation of an apprenticeship program, and the 1958 creation of the Toolmaker Apprenticeship Program; 1986 efforts to revitalize the Cummins and Diesel Workers Union Apprenticeship Program, which at that point was down to only 10 apprentice electricians; and the selection of Ivy Tech to be the primary provider of related training. Beatty reports that the 50 apprentices who started classes in 3 different programs in 1987 and the 45 who started the following year in 4 different programs have completed their apprenticeship programs and received certificates of completion from Ivy Tech and the Department of Labor's Bureau of Apprenticeship and Training. Finally, he describes the initial impetus to expand Ivy Tech's training programs to other companies. Next, Sue Smith explains how Ivy Tech began to research the needs and concerns of the local business community, and how a committee of educators and industry representatives identified three skill areas for training (i.e., tool and die; electrical maintenance, and industrial maintenance/machine repair) and later added another three (i.e., molding, moldmaking, and patternmaking). Finally, both Beatty and Smith offer their perspectives on the future of the Ivy Tech partnerships with local industries. Handouts from the presentation are attached. (ECC)

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WORKFORCE 2000

Effective Partnership Between Public Education and Private Industry

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Presenters:

Sue Griffith Smith
Coordinator of Business and Industry Training
Indiana Vocational Technical College
Columbus, Indiana

David Beatty
Technical Training Manager
Cummins Engine Co.
Columbus, Indiana

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FOREWARD:

According to Robert Reich, U.S. Department of Labor, Secretary of Labor, in 1994 Workforce 2000 Conference, 75 percent of all high school graduates do not earn post-secondary degrees. Yet, technology in what were traditionally low skill jobs is pushing these positions to higher and higher skills levels. The workforce must, therefore be trained and retrained in an effort to keep abreast of the skills levels of industry.

This presentation was given at the 1994 Workforce 2000 Conference in New Orleans, Louisiana, as a solution to some of those training needs. It represents the successful efforts of one community and is intended as model for use in other communities across the country.

It is written in presentation format complete with overheads as illustration and curricula examples as handouts.

INTRODUCTION (Sue Smith)

A partnership between business and education has been formed at the suggestion of industry in Southern Indiana. All who participate in this program are quite proud of it. We have accomplished many things in our community, from simply getting competing businesses to cooperate and work together for a common goal, to ensuring the availability of a trained workforce for all companies in the area.

Our goals in the establishment of this partnership included providing our area with a highly skilled workforce. Each industry agreed to provide on-the-job-training for its employees, while Ivy Tech provides classroom educational support.

In ensuring this availability of skilled labor, we hope to preserve and continue the economic growth in our area.

Our story will unfold in three parts; Past, Present, and Future. At times, it will be from an industrial point of view and at times from an educational point of view, but always with the end result, a highly skilled, trained workforce fostering economic development throughout our country in mind.

Please inquire if you would like further information, as it is our hope that Skilled Trades/Apprenticeship be adopted nationwide, as a model for training and retraining our workforce.

THE PAST (David Beatty)

Discussions to start an apprenticeship program at Cummins Engine Company, Inc. began in 1956. The need to start an apprenticeship program was driven by an aging workforce in Toolmaker "A" jobs. These jobs had been populated by a seniority system that meant older employees were placed in the Toolmaker positions. In spite of their previous experience, it took two years or more before they were qualified for toolmaking work. Also, the selection system did not supply the classification with comparatively young people.

In 1956, the thinking was that by starting an

apprenticeship program it would lead to a dependable supply of trained craftsmen. Also, by having a selection process other than strictly by seniority, it would lead to a more even distribution of young and older people in the toolroom.

Another benefit of starting an apprentice program was that the experience of other companies indicated that many apprentices eventually move up to management positions. The careful selection and special training these people received as apprentices seem to be the principle reason for their advancement. I might note here that six of the first seven apprentices selected eventually went on to management/ engineering positions at Cummins.

The Toolmaker Apprenticeship Program began in July 1958. By 1986, the Cummins and Diesel Workers Union Apprenticeship Program was down to only ten electrician apprentices, who were within one-year of graduation. In September 1986, I was selected to manage the "restart" of apprenticeship training.

Upon selection, I was charged with two major tasks: immediately conduct a selection process and review and revise the related training schedule for all apprenticeship programs. This was to be accomplished simultaneously. Fortunately, having served in the past on the Joint Apprenticeship Committee, I was familiar with the selection process. With the assistance of my predecessor, who was retired, I was able to start and complete the selection process on schedule.

While managing the selection process, I along with the Joint Apprenticeship Committee began examining the availability of educational opportunities in the local area. The end result was that Indiana Vocational Technical College was chosen as the primary provider of related training. This selection was based on the quality of instruction and their flexibility in being able to meet my scheduling requirements not their's. I had such requirements as specific start and completion dates, specific days in the week for the classes, and in some cases I specified the classes be scheduled at a

certain time on the scheduled days.

The first group of apprentices started classes on February 2, 1987. The 50 apprentices selected were in three different programs. One year later we started another group of 45 apprentices in four different programs. As we progressed with the first group, we made improvements and implemented those for the second group.

Both groups have now completed their respective apprenticeship programs. Upon completion, each apprentice received two certificates of completion: one from Ivy Tech for the completion of a specific number of credit hours and one from the U.S. Department of Labor, Bureau of Apprenticeship and Training for the completion of the apprenticeship program. I see the Ivy Tech credits as another benefit for our apprentices. By receiving the Ivy Tech credit, apprentices can continue their education to receive Associate Degrees. Under the old system, they would not have received formal credit for the related training.

One unique aspect of the related training classes was that only Cummins' apprentices were enrolled in them. This was the first time for Ivy Tech to schedule apprenticeship classes for just one company. With class sizes of ten to twenty students, I was able to work with Ivy Tech to have them schedule the classes for just my apprentices. However, on special occasions space was made available for other students.

It was during 1990 that I mentioned to Ivy Tech that they should be working with all of the industry in the local area to determine apprentice training needs. I knew that in the future I would not have the number of students required to fill the entire class. My thinking was that if Ivy Tech could coordinate the effort of working with several companies, together we could generate enough students for an entire class in several trades.

As I expected, Ivy Tech responded to the challenge. One of Ivy Tech's Business and Industry Associates took on the

project. Invitations were sent out and the initial meeting conducted. It was a time of sharing ideas and concerns. A concern of one of the smaller companies was that they would train their people and Cummins would hire them away. But as another person mentioned, they didn't really have an option, they had to have a pool of trained people in the workplace.

The end result was that the companies were able to agree on the related training programs for several different apprentice programs. Enough students were enrolled and classes started in the fall, 1991.

THE PRESENT (Sue Smith)

In response to Cummins' request, Ivy Tech began to research the needs and concerns of the business community. We concluded that the need for a skilled workforce not only affected Cummins, but all manufacturing facilities in our area. In fact, the growth and economic development in the entire community seemed to depend upon the availability of skilled employees.

We formed a committee comprised of educators and local industries to determine the training needs of the area. Though the first few attempts at assessment were only complaining sessions, the businesses and educators finally began working together and agreed upon three skilled trades areas for training; ***Tool and Die, Electrical Maintenance, and Industrial Maintenance/Machine Repair***. Some of the companies used the curricula as the educational portion bar if registered apprenticeship programs, while others opted for non-registered, skilled trades programs.

Though skilled trades committee members worked out their differences and aired their complaints to their satisfaction, some of those bear repeating. Statistically it has been determined in our area that for every person who enters the tool and die skilled trade, five leave. A serious shortage will be created within a minimal timeframe.

Also fueling the fire created by a shrinking workforce are complaints by industry that high schools routinely graduate students with no marketable skills. There is, in other words, no shortage of labor. The unskilled labor, however, coming from the school system is virtually useless to local industry.

Educators, however, cannot be held solely responsible for the shrinking skilled workforce. Before I signed on at Ivy Tech, I worked for a Fortune 500 company in a small town near Columbus, Indiana. They could boast of a highly trained, but somewhat aging workforce.

Their employees, however, were only trained for one specific task. Of course, they did their jobs with high production rates and minimal scrap ratios.

The company was quite profitable until a labor dispute sent the entire workforce of 250 out on strike, creating two distinct, yet related examples of the problems within our workforce.

All striking employees were skilled at one company-specific task. This rendered them of little or no use to any other business aside from the one they were picketing. They were unskilled to any other employer.

As the company attempted to hire replacement workers, it found no skilled workforce from which to choose. It was faced with either giving in to the demands of the striking workers or huge retraining costs. Either option would be expensive.

The striking employees were also in a bind. They could give in to the concessions requested by the corporation, face long-term unemployment as the result of low skill levels, or go back to school for retraining.

There were no winners in this situation. Everyone lost, and that plant no longer exists. Many of its striking workers are still unemployed after four years.

All these issues and concerns facilitated the ease with which educators and industry worked together on this committee

placing approximately 40 students into one of the three skilled trades programs. Most companies even paid books and tuition costs for their students. The first class began fall, 1991.

The goal is to provide consistent training in deficit areas ensuring the availability of skilled trades personnel possessing similar competencies whatever their employment history.

Over the next few months, after the start of the first class, the college was continuously contacted by various industries interested in skilled trades and apprenticeship. It became increasingly apparent that the college would not be able to train skilled trades personnel quickly enough to meet demands. Also, more trades were needed as new industries, such as plastics, began to play a key role in the business community and local economy.

The Skilled Trades/Apprenticeship Committee reconvened. With the added input of the plastics manufacturers, the three skilled trades were expanded to six trade areas: ***Molding, Moldmaking, Patternmaking, Tool and Die, Electrical Maintenance, and Industrial Maintenance/Machine Repair.***

We also began working with secondary educators to create co-ops and discuss articulation of specific high school academic credits to college credit. This would provide for high school seniors to become "job-ready" upon graduation and act as a pre-apprenticeship, as many co-op students are offered manufacturing positions through their co-op company upon graduation.

In January, 1993, approximately 75 students from many industries were added to the Skilled Trades/Apprenticeship Program in the form of a new class divided among six trades. They entered at various levels in each curricula, creating an administrative scheduling nightmare, but well worth the extra effort. In January, 1994, another 40 students began an additional class.

This is where we are at present,and we are looking toward a bright, progressive future.

THE FUTURE (David Beatty)

The partnership relationship between Ivy Tech and local industries has established a foundation to support the future. The next step is for both Ivy Tech and local industries to step up the pace of working with the local high schools. We need to make sure that the high school students are acquiring the right skills that will enable them to fit right into the established apprentice programs. Students with the right skills could possibly receive both classroom and on-the-job-training credit for their high school experience. This linkage with the schools can provide the pipeline needed for industry to have a qualified supply of apprentice applicants. The problem with the concept at this time is that some industries are not providing the openings for the students. This situation will change in the near future.

Once the above linkage is established, the apprentice concept needs to be well communicated to the community. One of the problems now is that vocational programs in the high schools are not getting the number of students they need. By communicating the opportunities of apprenticeship, more high school counselors and parents will see the value of this type of training. Hopefully this will increase the enrollment in vocational and technical preparation programs which will in turn provide more qualified applicants for apprentice programs.

THE FUTURE (Sue Smith)

Many socio-economic factors hinge upon our workforce. In fact, the entire manufacturing base of this country depends on it.

Any business could be enticed to relocate to another

country by paying low wages for unskilled labor. If given the choice of $8.00 per hour for unskilled labor in the United States or $1.50 per hour for unskilled labor in Mexico, for example, what would you choose?

Skilled labor is the difference. A skilled workforce at $8.00 plus per hour can be far more attractive than unskilled labor at $1.50 per hour. The availability of a highly trained workforce could preserve our nation's manufacturing base.

Locally, skilled labor availability attracts new businesses providing each community with growth and economic development.

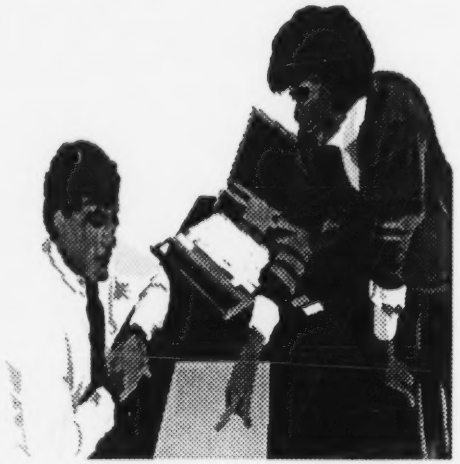
Individually, Skilled Trades/Apprenticeship provides the industrial and manufacturing labor force an opportunity for employemnt while expanding their education and horizon.

We see education as a life-long process. As each individual climbs the stairs to their future, they raise their standard of living and self esteem. They will take the country with them as they climb.

Workforce 2000

- Effective Partnership Between Public Education and Private Industry

Presenters:

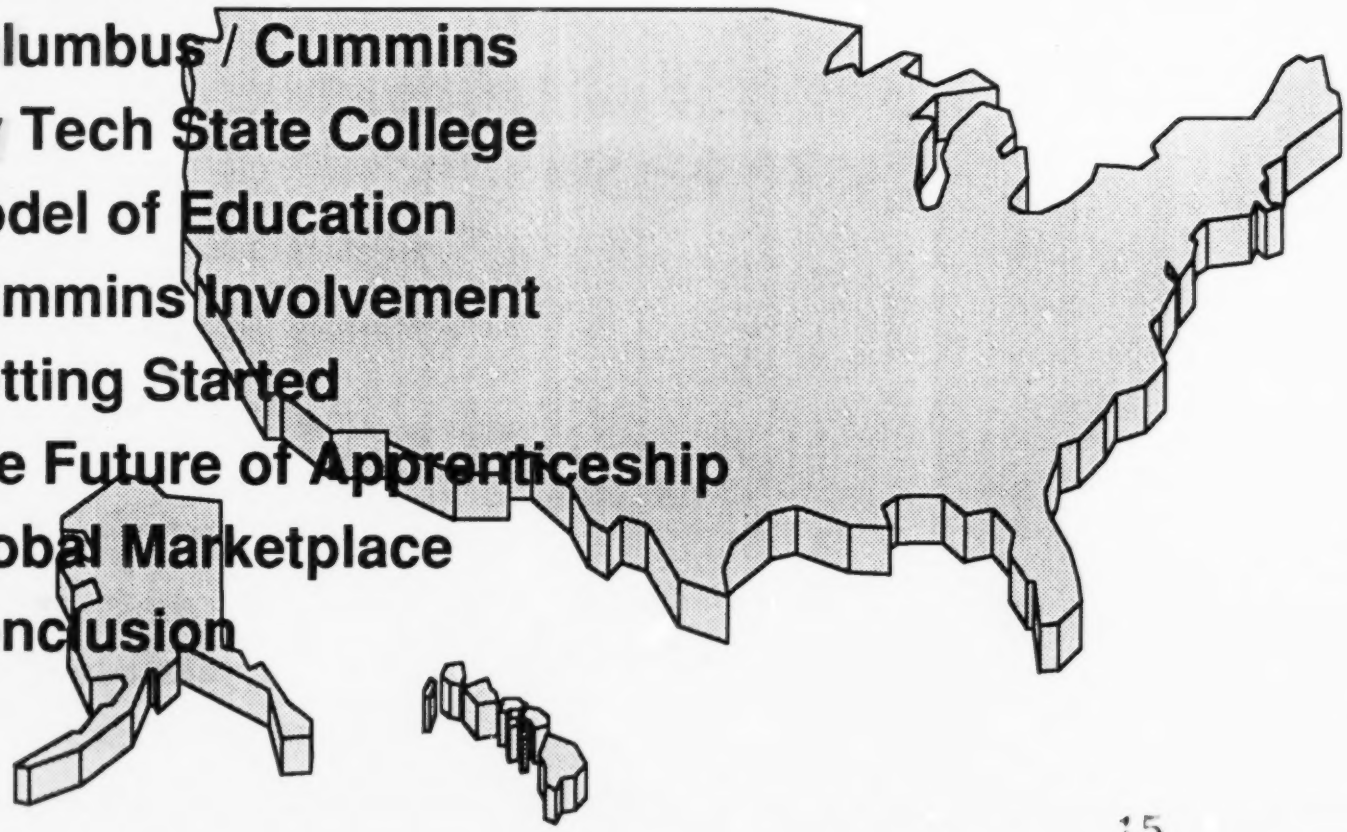


Sue Griffith Smith
Coordinator of Business and Industry Training
Ivy Tech State College
Columbus, Indiana

David Beatty
Technical Training Manager
Cummins Engine Company, Inc.
Columbus, Indiana

Workforce 2000 - Agenda

- Introductions
- Columbus / Cummins
- Ivy Tech State College
- Model of Education
- Cummins Involvement
- Getting Started
- The Future of Apprenticeship
- Global Marketplace
- Conclusion

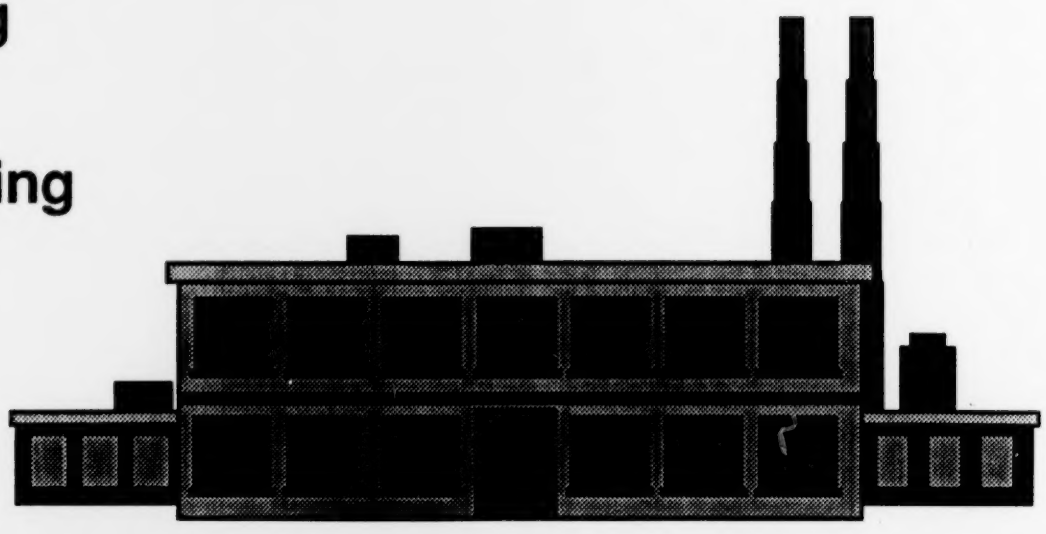


Workforce 2000 - Partnership Overview

- Local Industry / Ivy Tech State College
- Apprenticeship / Skilled Trades
- Columbus & Surrounding Area
- Partnership Between Industry & Education
- Fulfill Shortage of Skilled Workers
- Support Economic Development
- 1991 - Future

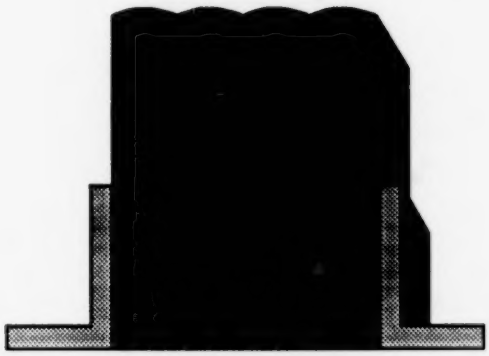
Workforce 2000 - Trades

- Electrical Maintenance
- Industrial Maintenance/Machine Repair
- Tool & Die Maker
- Mold Making
- Molding
- Pattern Making



Workforce 2000 Electrical

- First Semester
  - MAT 101 Algebra
  - IMT 222 Elect. Wiring Fundamentals
  - ENG 290 Communications
- Second Semester
  - Mat 104 Algebra/Trig
  - ELT 100/102 Circuits I & Lab
- Third Semester
  - ELT 101 Circuits II
  - IMT 104 Fluid Power Basics
- Fourth Semester
  - ELT 290 Solid State I
  - SCI 103/104 Physics & Lab
- Fifth Semester
  - ELT 290 Solid State II
  - ELT 204 Linear Integrated Circuits
- Sixth Semester
  - ELT 103 Digital Principles
  - ELT 104 Computer Fundamentals
  - ELT 107 Industrial Electronics
- Seventh Semester
  - ELT 106 Digital Applications
  - ELT 206 Analog Troubleshooting Techniques
- Eighth Semester
  - ELT 202 Microprocessors
  - ELT 207 Digital Troubleshooting Techniques



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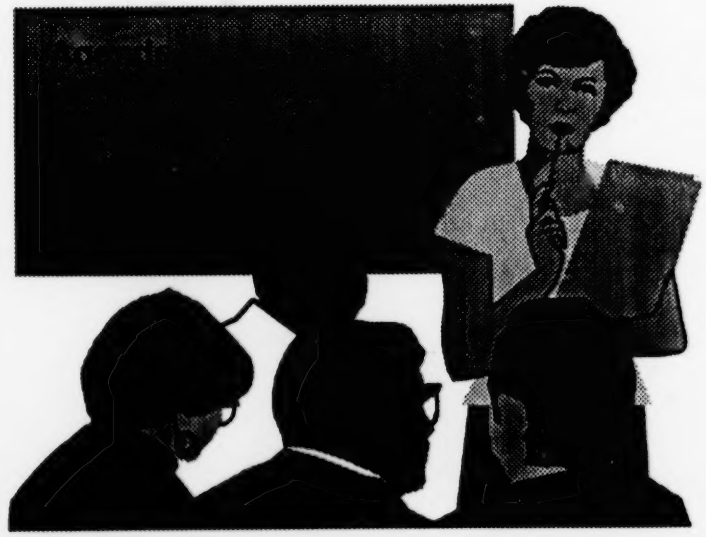
Workforce 2000 - Getting Started

- Started Discussion in 1990
- Issues
  - Large Industry Hiring Workers Trained By Small Companies
  - Scheduling
  - Curriculum Development
  - Financing
  - Record Keeping
  - Program Registration
- Classes Began 1991



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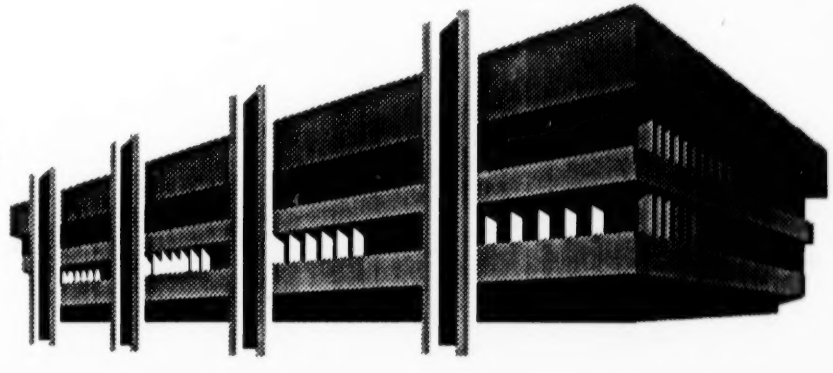
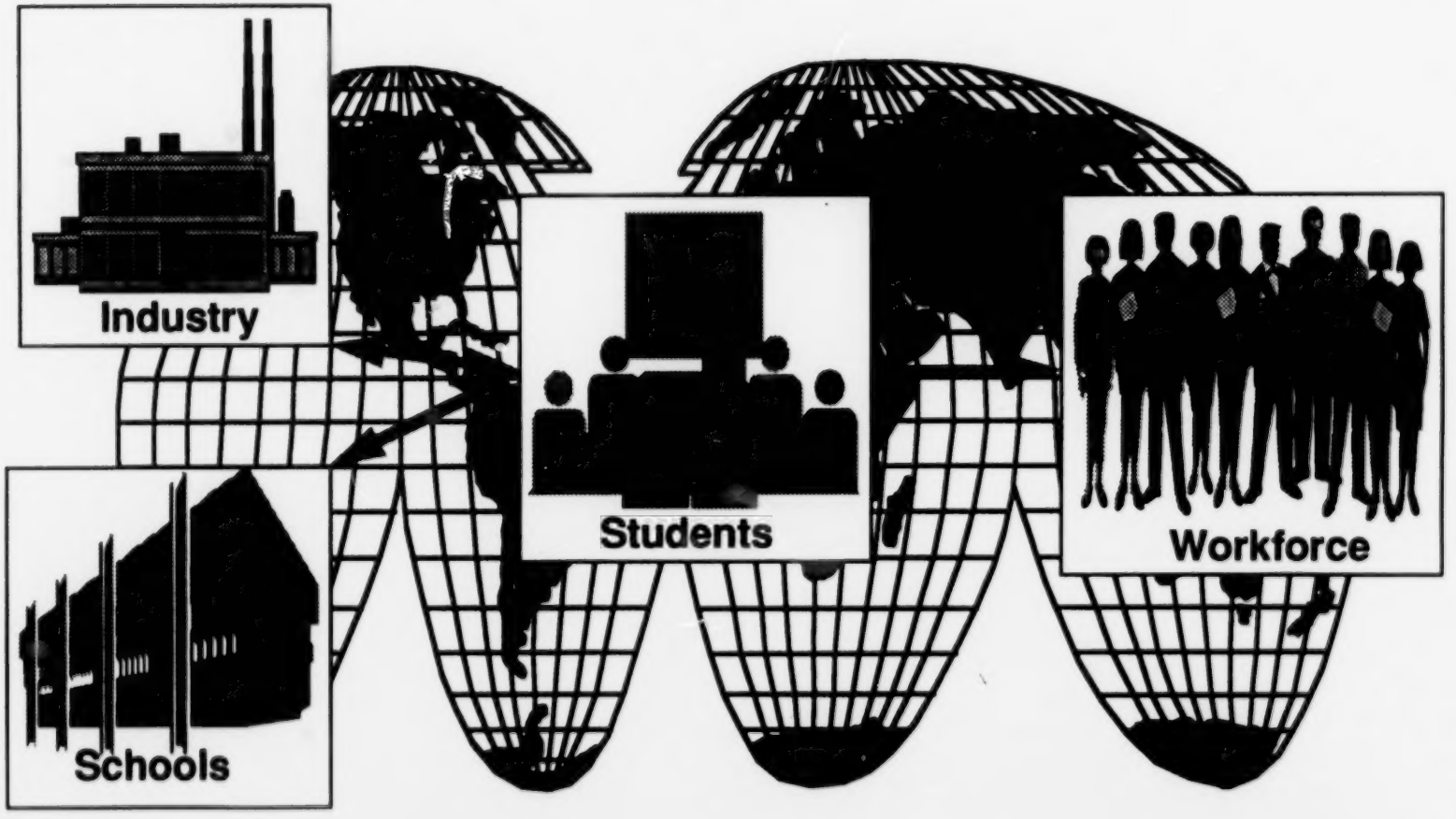
Workforce 2000 - Ivy Tech State College (Columbus)

- Full Time Students - 474
- Part-Time Students - 1250
  - Skilled Trades Students = 16% of part-time
- Students' Average Age - 34
- Employment Status
  - 37% Full Time
  - 12% Part-Time
- Educational Level
  - High School Diploma - 63%
  - Some College - 24%
  - Associate Degree - 3%
  - Bachelor's Degree - 4%



Workforce 2000 - Education Model

Workforce 2000 - Global Marketplace



Workforce 2000 - Columbus Area Population

- Columbus - 31,802
- Bartholomew County - 63,657
- Region XI (5 County Area) - 162,773
- Commuting Area (11 Counties) - 488,610

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Workforce 2000 - Closing

- **College Professor:**
  - **"Such wrong in the student is a shame, lack of preparation in high school is to blame."**
- **High School Teacher:**
  - **"Good heavens that boy is a fool, the fault of course is the [illegible] school."**
- **Middle Sch[illegible]**
  - **"From s[illegible] spared, they sent him t[illegible]**
- **Kind[illegible]**
  - **S[illegible] what kind of [illegible]**
- **Mother:**
  - **"Poor h[illegible] blame, his father's fo[illegible]."**
- **Father:**
  - **Said the father at the end of the line, "I doubt the rascal is even mine."**

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